FOLSOMIA CANDIDA WILLEM, 1902 (INSECTA, COLLEMBOLA): PROPOSED CONSERVATION BY THE SUPPRESSION OF *ENTOMOBRYA CAVICOLA* BANKS, 1897. Z.N.(S.)2210

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Banks, 1897, p. 380, described the new species *Entomobrya cavicola* from Mammoth Cave, Kentucky. The figure accompanying his description makes it clear that the species is not an *Entomobrya* but a *Folsomia* (ISOTOMIDAE). This was first recognised in print by Christiansen, 1960, p. 42, where *cavicola* Banks is transferred to *Folsomia* on the basis of this figure. Salmon, 1964, p. 334, placed *cavicola* as a synonym of *Folsomia fimetaria* (Linnaeus, 1758). There are ten other references to the name *cavicola* Banks in the literature; nine of these are merely references to the original description or type locality (e.g. Wolf, 1934–1938, vol. 3, p. 123; Barr, 1968, pp. 166–167).

2. Type specimens of *E. cavicola* Banks are in the United States National Museum. The label on one slide reads '*Entomobrya cavicola* Banks = *Folsomia fimetaria* (L.), det. J. T. Salmon, 1958' and 'Mammoth Cave, Ky. Coll. R. E. Call. Cotype no. 4321'; the label bears a red stripe, presumably applied by Salmon. The specimen is in fair condition and obviously belongs to *Folsomia*. Unfortunately, it is not *F. fimetaria* (L.) as currently recognised, but *F. candida* Willem, 1902. Two other slides marked 'cotype' carry specimens that are also identifiable as *F. candida*. According to the Law of Priority, the name *candida* should now be replaced by the senior name *cavicola* Banks.

3. The various white, blind species of *Folsomia* (including *fimetaria* and *candida*) were not distinguished clearly until recent years. The description of *Podura fimetaria* by Linnaeus, 1758, p. 609, could apply to any of these (or, in fact, to members of several other genera of ISOTOMIDAE or ENTOMOBRYIDAE). In 1767, Linnaeus changed the description of the species; *Podura fimetaria* of the 12th edition of the *Systema Naturae* (p. 1014), and of later authors for more than a century, is a species that does not jump, generally considered to be an *Onychiurus* (the name *Onychiurus fimetarius* is still in use, though illegally, for a widespread European species). Modern interpretations of *P. fimetaria* Linnaeus, 1758, are based on its assignment by Tullberg, 1872, p. 78, to *Isotoma*, and by Börner, 1903, p. 142, to *Folsomia*; and on the interpretation of the name by Stach, 1947, p. 154.

4. Willem, 1902, p. 280, described '*Folsomia candida* nov. gen., nov. sp.' from the Rochefort cave, Belgium. The genus is monotypic. In the years following, *Folsomia* was generally accepted as the valid generic name for species formerly placed in *Isotoma* that have the last three abdominal segments fused; but *candida* was regarded, following Börner, 1903, p. 142, as a

synonym of *fimetaria*. The two species were first distinguished by Stach, 1947, p. 178, who applied the name *candida* to a common European cave species (though without examining material from the type locality of *candida*), and the name *fimetaria*, as noted above, to a different species that is also widespread. Following Stach's redescriptions, *F. candida* was generally recognised by other authors as a very common species that appears to be more generally distributed than *fimetaria* sensu Stach; the latter, for example, is rare in the Nearctic region, where *F. candida* is widespread and abundant in many localities.

5. *F. candida* is facultatively parthenogenetic, and quite variable; in North America there are two distinct phenotype clusters, A and B, which are usually distinguishable, but extensive intergradation between them makes their taxonomic separation impractical. Stach's description applies to form B, and this is apparently the only form found in Europe generally (according to Gisin in a letter to Christiansen); the type specimens of *cavicola* Banks clearly belong to form A.

6. Nomenclature in this group is further complicated by the name *Folsomia cavicola* Cassagnau & Delamare, 1955, p. 381, proposed for a species from a cave in Lebanon, which has also been applied to some British material (Goto, 1956, p. 12). The original description is generally similar to that by Stach of *F. candida*, with some characters like those of form A and some like those of form B; the name is placed as a synonym of *candida* by Gisin, 1960, p. 184 and Palissa, 1964, p. 156. On the other hand, Salmon, 1964, pp. 332–333, lists it as a separate species; this is the only entry for *F. cavicola* to be found in this fundamental reference.

7. Since its recognition following Stach's redescription, *F. candida* has become a favourite experimental animal. More than twenty authors have published papers dealing with this species as a test animal in experiments on litter breakdown, population growth, competition, and insecticide and herbicide assays. In addition, there are many references in the literature to its systematic position, morphology, distribution, habitats and biology; in all, *F. candida* is mentioned in over 400 papers published since 1947 (a list has been deposited with the Commission's Secretariat).

8. The substitution of *cavicola* Banks for *candida* Willem as required by strict application of the Law of Priority would result in the disappearance of a well-known name, that of the nominal type species of *Folsomia*; would cause confusion because of the homonymous, and possibly synonymous, *cavicola* Cassagnau & Delamare; and would lead to permanent uncertainty because of the possible restriction of the name *candida* to form B, if that is regarded as specifically distinct. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary powers to suppress the specific name *cavicola* Banks, 1897, as published in the binomen *Entomobrya cavicola*, for the purposes of the Law of Priority, but not for those of the Law of Homonymy;

(2) to place the generic name *Folsomia* Willem, 1902 (gender:

feminine), type species, by monotypy, *Folsomia candida* Willem, 1902, on the Official List of Generic Names in Zoology;

(3) to place the specific name *candida* Willem, 1902, as published in the binomen *Folsomia candida* (specific name of type species of *Folsomia* Willem, 1902) on the Official List of Specific Names in Zoology.

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APPENDIX

Characteristics of forms A and B of *F. candida* (Christiansen & Bellinger, 1980, p. 633)

Characteristic	*Form A*	*Form B*
Ventral manubrial setae	23–30	16–22
Third abdominal segment: $\dfrac{\text{longest seta}}{\text{segment length}}$	·64–·80	·50–·63
Two basal manubrial setae	1st > 2nd	1st ≃ 2nd
Manubrium/dens	·60–·66	·66–·75

Of 75 populations from various parts of the United States, 31 belonged to form A, 29 to form B and 14 were intermediate in character. Neither form was geographically localised.